

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) A computerized method of video analysis comprising:
receiving, at a computerized receiving device, a plurality of series of video frames generated by a plurality of image sensors, each having a field-of-view, ~~which~~ that monitors a portion[[s]] of a monitored environment; ~~and~~
concurrently tracking, using a tracking module, a plurality of objects with respect to the monitored environment as the objects move between fields-of-view based at least in part on a probability that one of the plurality of objects included in a first video frame generated by a first image sensor at a first point in time will be included in a second video frame generated by a second image sensor at a second point in time; and
concurrently tracking, using the tracking module and based on at least some of the received series of video frames, a plurality of objects with respect to the monitored environment ~~and~~ based on an analysis of the monitored environment over time and independent of calibration among the image sensors and the monitored environment.[[.]]
~~(i) the plurality of objects within the monitored environment as the objects move between fields of view, and ii) a plurality of objects within one field of view based on at least some of the received series of video frames.~~
2. (Original) The method of claim 1 wherein the image sensors are cameras.
3. (Cancelled)
4. (Original) The method of claim 1 further comprising :
storing a plurality of blob states over time, each state including a number of objects included in the blob and a blob signature; and

storing a plurality of transition likelihood values representing the probability that objects within one blob at one instant in time correspond to objects within other blobs at other instants in time.

5. (Original) The method of claim 4 further comprising altering the stored transition probabilities upon analysis of additional video frames.
6. (Original) The method of claim 4 further comprising storing object data indicating correspondences between objects and blob states.
7. (Original) The method of claim 4 generating a tracking solution based on the blob states and transition probabilities.
8. (Original) The method of claim 1 generating tracking metadata including at least one of object track data, tracking solutions, object feature data and field-of-view data.
9. (Original) The method of claim 8 further comprising:
 - selecting a rule set to analyze generated tracking metadata; and
 - evaluating, using a rules engine, the tracking metadata based on the rule set.
10. (Original) The method of claim 9 further comprising selecting the rule set to monitor parking lot security.
11. (Original) The method of claim 9 further comprising selecting the rule set to detect property theft.

12. (Original) The method of claim 9 further comprising selecting the rule set to detect hazards to children.

13. (Original) The method of claim 9 further comprising selecting the rule set to monitor public safety.

14. (Original) The method of claim 9 further comprising selecting the rule set to determine merchandizing and operations statistics.

15. (Currently Amended) A computerized system for video analysis comprising:

a receiving module configured to receive a plurality of series of video frames, the series of video frames generated over time by a plurality of image sensors which monitor portions of a monitored environment and have a field-of-view; and

a calibration-independent tracking module in communication with the receiving module and configured to i) concurrently track a plurality of objects with respect to within the monitored environment as the objects move between fields-of-view based at least in part on a probability that one of the plurality of objects included in a first video frame generated by a first image sensor at a first point in time will be included in a second video frame generated by a second image sensor at a second point in time, and ii) concurrently track a plurality of objects within one field-of-view based on at least some of the received series of video frames and independent of calibration among the image sensors and the monitored environment, the tracking module outputting tracking metadata.

16. (Original) The system of claim 15 further comprising a rules engine in communication with the tracking module and receiving the tracking metadata.

17. (Currently Amended) A system for monitoring parking lot security comprising:

a receiving module configured to receive a plurality of series of video frames, the series

of video frames generated over time by a plurality of image sensors which monitor portions of a monitored environment and have a field-of-view;

a calibration-independent tracking module in communication with the receiving module and configured to i) concurrently track a plurality of objects with respect to within the monitored environment as the objects move between fields-of-view based at least in part on a probability that one of the plurality of objects included in a first video frame generated by a first image sensor at a first point in time will be included in a second video frame generated by a second image sensor at a second point in time, and ii) concurrently track a plurality of objects within one field-of-view based on at least some of the received series of video frames and independent of calibration among the image sensors and the monitored environment, the tracking module outputting tracking metadata; and

a rules engine utilizing a parking lot security rule set configured to receive and evaluate the tracking metadata.

18. (Currently Amended) A system for property theft detection comprising:

a receiving module configured to receive a plurality of series of video frames, the series of video frames generated over time by a plurality of image sensors which monitor portions of a monitored environment and have a field-of-view;

a calibration-independent tracking module in communication with the receiving module and configured to i) concurrently track a plurality of objects with respect to within the monitored environment as the objects move between fields-of-view based at least in part on a probability that one of the plurality of objects included in a first video frame generated by a first image sensor at a first point in time will be included in a second video frame generated by a second image sensor at a second point in time, and ii) concurrently track a plurality of objects within one field-of-view based on at least some of the received series of video frames and independent of calibration among the image sensors and the monitored environment, the tracking module outputting tracking metadata; and

a rules engine utilizing a theft detection rule set configured to receive and evaluate the tracking metadata.

19. (Currently Amended) A system for child hazard detection comprising:

a receiving module configured to receive a plurality of series of video frames, the series of video frames generated over time by a plurality of image sensors which monitor portions of a monitored environment and have a field-of-view;

a calibration-independent tracking module in communication with the receiving module and configured to i) concurrently track a plurality of objects with respect to the monitored environment as the objects move between fields-of-view based at least in part on a probability that one of the plurality of objects included in a first video frame generated by a first image sensor at a first point in time will be included in a second video frame generated by a second image sensor at a second point in time, and ii) concurrently track a plurality of objects within one field-of-view based on at least some of the received series of video frames and independent of calibration among the image sensors and the monitored environment, the tracking module outputting tracking metadata; and

a rules engine utilizing a child safety rule set configured to receive and evaluate the tracking metadata.

20. (Currently Amended) A system for property theft detection comprising:

a receiving module configured to receive a plurality of series of video frames, the series of video frames generated over time by a plurality of image sensors which monitor portions of a monitored environment and have a field-of-view;

a calibration-independent tracking module in communication with the receiving module and configured to i) concurrently track a plurality of objects with respect to within the monitored environment as the objects move between fields-of-view based at least in part on a probability that one of the plurality of objects included in a first video frame generated by a first image sensor at a first point in time will be included in a second video frame generated by a second image sensor at a second point in time, and ii) concurrently track a plurality of objects within one field-of-view based on at least some of the received series of video frames and independent of calibration among the image sensors and the monitored environment, the tracking module outputting tracking metadata; and

a rules engine utilizing a public safety monitoring rule set configured to receive and evaluate the tracking metadata.

21. (Currently Amended) A system for merchandizing and operations statistical analysis comprising:

a receiving module configured to receive a plurality of series of video frames, the series of video frames generated over time by a plurality of image sensors which monitor portions of a monitored environment and have a field-of-view;

a calibration-independent tracking module in communication with the receiving module and configured to i) concurrently track a plurality of objects with respect to within the monitored environment as the objects move between fields-of-view based at least in part on a probability that one of the plurality of objects included in a first video frame generated by a first image sensor at a first point in time will be included in a second video frame generated by a second image sensor at a second point in time, and ii) concurrently track a plurality of objects within one field-of-view based on at least some of the received series of video frames and independent of calibration among the image sensors and the monitored environment, the tracking module outputting tracking metadata; and

a rules engine utilizing a merchandizing and operations statistical rule set configured to receive and evaluate the tracking metadata.

22. (Withdrawn) A method of analyzing video data comprising: receiving tracking metadata from a calibration-independent tracking module; analyzing the metadata; generating an event if a portion of the metadata exhibits a specified pattern; and analyzing the metadata using a regular expression representation of the specified pattern.

23. (Withdrawn) The method of claim 22, further comprising: comparing the regular expression of the specified pattern to the portion of the metadata by utilizing a software implemented representation of a finite state machine.

24. (Withdrawn) A system of video analysis comprising:
means for receiving tracking metadata from a calibration-independent tracking module;
means for analyzing the metadata;
means for generating an event if a portion of the metadata exhibits specified pattern; and
means for analyzing the metadata using a regular expression representation of the
specified pattern.
25. (Previously Presented) The method of claim 1 wherein the fields-of-view are non-overlapping.
26. (Previously Presented) The system of claim 15 wherein the fields-of-view are non-overlapping.
27. (Previously Presented) The system of claim 17 wherein the fields-of-view are non-overlapping.
28. (Previously Presented) The system of claim 18 wherein the fields-of-view are non-overlapping.
29. (Previously Presented) The system of claim 19 wherein the fields-of-view are non-overlapping.
30. (Previously Presented) The system of claim 20 wherein the fields-of-view are non-overlapping.
31. (Previously Presented) The system of claim 21 wherein the fields-of-view are non-overlapping.